

## **REMARKS**

### **Status of the Claims**

The Applicants thank Examiner Bowers for his careful review of this application. Claims 28-32 and 34-40 are pending in the present application. Claim 28 is the independent claim. Applicant has amended Claims 28, 30, 32, 35, 36, and 38 herein. In addition, Applicant has canceled Claim 33 without prejudice to, or disclaimer of, the subject matter recited therein. Claims 41-44 have been added. No new matter has been added.

### **Summary of the Office Action**

In the Office Action, Claims 28-32, 35, 39 and 40 were rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over U.S. Patent Application No. 2005/0112544 to Xu et al ("Xu") in view of U.S. Patent Application No. 2005/0054969 to Hoff et al ("Hoff"). Claims 33 and 34 were rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Xu and Hoff and further in view of U.S. Patent Application No. 2004/0241965 to Merritt et al. ("Merritt"). Claims 36-38 were rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Xu and Hoff and further in view of U.S. Patent Application No. 2004/0197883 to Dzekunov et al ("Dzekunov").

### **Remarks Regarding The Claim Rejections**

#### **A. Independent Claim 28 is Patentable over at least Xu and Hoff**

Applicant submits that independent Claim 28 is patentable over at least Xu and Hoff because neither Xu nor Hoff discloses, teaches, or suggests at least the feature of a fluid flow chamber configured to perfuse the cells or lipid vehicles with a plurality of solutions defined by the second side of the conducting electrode material, a top disposed opposite the second side of the conducting electrode material and at least one sidewall separating the second side of the conducting electrode material and the top, wherein the top comprises an optical window, as similarly recited in amended independent Claim 28. In the Office Action, the Examiner cited paragraph [0201] of Xu as allegedly disclosing this feature. (See Office Action, at page 3).

Furthermore, the Examiner relies on Dzekunov to allegedly teach the features of the fluid flow chamber and cited Figure 12 and paragraphs [0191]–[0193] and [0240]–[0242] of Dzekunov. (See Office Action, at pages 6-7). Applicant respectfully disagrees with that interpretation of Xu, Hoff and Dzekunov.

Furthermore, Applicant submits that independent Claim 28 is patentable over at least Xu and Hoff because neither Xu nor Hoff discloses, teaches, or suggests at least the feature that the second side of the conducting electrode material comprises a microfiber glass that is suitable for plating and holding a monolayer of cells or lipid vehicles to be electroporated. In the Office Action, the Examiner cited Figures 3 and 4B and paragraphs [0041]–[0044], [0192], and [0198] of Xu as allegedly disclosing this feature. (See Office Action, at page 3). Furthermore, the Examiner relies on Merritt to allegedly teach this feature and cited paragraph [0037] of Merritt. (See Office Action, at pages 5-6). Applicant respectfully disagrees with that interpretation of Xu, Hoff and Merritt.

Xu

**a. Xu does not disclose the fluid flow chamber of Applicant's claimed invention**

Applicant submits that Xu does not disclose, teach, or suggest at least the feature of a fluid flow chamber configured to perfuse the cells or lipid vehicles with a plurality of solutions defined by the second side of the conducting electrode material, a top disposed opposite the second side of the conducting electrode material and at least one sidewall separating the second side of the conducting electrode material and the top, wherein the top comprises an optical window, as similarly recited in amended independent Claim 28.

As Applicant understands, Xu is directed to a device for detecting cells and/or molecules on an electrode surface. With regards to the fluid flow chamber of Applicant's claimed invention, the Examiner, relying on paragraph [0201] of Xu, states that the "device...is positioned within a common laboratory fluid chamber, such as a microtiter plate. The microelectrode plate forms the bottom surface of the fluid chamber, and the microtiter plate forms the top and sidewall portions." (See Office Action, at page 3).

First, with regards to the configuration of the fluid flow chamber, the Examiner incorrectly analogizes the microtiter plate of Xu to the fluid flow chamber of Applicant's

claimed invention. The microtiter plate of Xu is merely a “well” that is used to hold the cells that are to be electroporated. This is not the same as the fluid flow chamber of Applicant’s claimed invention that is configured to perfuse the cells or lipid vehicles with a plurality of solutions. In the Applicant’s claimed invention, the cells or lipid vehicles are held by the second side of the conducting electrode material.

Secondly, the Examiner claims that the “microtiter plates disclosed by Xu are commonly made from clear polymer or glass materials.” (See Office Action, page 5). As noted above, the microtiter plates of Xu are not the same as the fluid flow chamber of Applicant’s claimed invention. Therefore, the top of the fluid flow chamber would be completely different from the microtiter plates. Furthermore, despite the comparison of two different objects, just because the microtiter plates of Xu are made from clear polymer or glass materials that does not mean that the microtiter plate comprises an optical window. In fact, as Applicant understands, Xu is silent with respect to any type of optical window.

**b. Xu does not disclose the features of the second side of the conducting material of Applicant’s claimed invention**

Applicant submits that Xu does not disclose, teach, or suggest at least the feature that the second side of the conducting electrode material comprises a microfiber glass that is suitable for plating and holding a monolayer of cells or lipid vehicles to be electroporated, as similarly recited in amended independent Claim 28.

As Applicant understands, Xu is directed to a device for detecting cells and/or molecules on an electrode surface. With regards to the conducting electrode material of Applicant’s claimed invention, the Examiner, relying on Figures 3 and 4B and paragraphs [0041]–[0044], [0192], and [0198] of Xu, states, “Figure 4B indicates that a plurality of electrodes are arranged on a surface of the plate, such that the electrodes are adapted to support a monolayer of cells and/or lipid vehicles.” (See Office Action, at page 3). Figure 4B is a fairly simple drawing that contains no reference numbers and/or labels. Furthermore, the accompanying text to Figure 4B of Xu states, “FIG. 4B is a schematic representation of a device with multiple disc-type shaped electrodes.”

Applicant contends that Figure 4B and the accompanying text of Xu are insufficient to disclose, teach, or suggest at least the feature that the second side of the conducting electrode

material comprises a microfiber glass that is suitable for plating and holding a monolayer of cells or lipid vehicles to be electroporated. As Applicant understands, Xu is silent with respect to its device comprising a microfiber glass. Furthermore, Xu is silent with respect to its device being suitable for plating and holding a monolayer of cells or lipid vehicles to be electroporated.

**c. Xu does not disclose at least the two features as discussed above with respect to Applicant's claimed invention**

As noted, Xu does not disclose, teach, or suggest at least the two features discussed above. Therefore, Xu alone cannot render obvious Applicant's claimed invention. In addition, Applicant submits that, as discussed below, Hoff fails to cure the deficiencies of Xu. Therefore, Applicant submits that Applicant's independent Claim 28 is patentable over at least Xu and Hoff.

Hoff

**a. Hoff does not disclose at least the two features as discussed above with respect to Applicant's claimed invention**

Applicant submits that Hoff does not disclose, teach, or suggest at least the feature of a fluid flow chamber configured to perfuse the cells or lipid vehicles with a plurality of solutions defined by the second side of the conducting electrode material, a top disposed opposite the second side of the conducting electrode material and at least one sidewall separating the second side of the conducting electrode material and the top, wherein the top comprises an optical window, as similarly recited in amended independent Claim 28. Furthermore, Applicant submits that Hoff does not disclose, teach, or suggest at least the feature that the second side of the conducting electrode material comprises a microfiber glass that is suitable for plating and holding a monolayer of cells or lipid vehicles to be electroporated, as similarly recited in amended independent Claim 28.

The Examiner did not cite Hoff as disclosing either of these two features as recited in Applicant's amended independent. Furthermore, as Applicant understands, Hoff is silent with respect to these two features.

Therefore, as noted, Hoff does not disclose, teach, or suggest at least the two features discussed above. Therefore, Hoff alone cannot render obvious Applicant's claimed invention. In addition, Applicant submits that, as discussed above, Hoff fails to cure the deficiencies of Xu.

Therefore, Applicant submits that Applicant's independent Claim 28 is patentable over at least Xu and Hoff.

Dzekunov

**a. Dzekunov does not disclose the fluid flow chamber of Applicant's claimed invention**

The Examiner further relied on Dzekunov as allegedly disclosing, teaching, or suggesting the feature of a fluid flow chamber configured to perfuse the cells or lipid vehicles with a plurality of solutions defined by the second side of the conducting electrode material, a top disposed opposite the second side of the conducting electrode material and at least one sidewall separating the second side of the conducting electrode material and the top, wherein the top comprises an optical window, as similarly recited in amended independent Claim 28. Applicant respectfully disagrees with that interpretation of Dzekunov.

The Examiner relies on Figure 12 and paragraphs [0191]–[0193] and [0240]–[0242] of Dzekunov as allegedly teaching this feature. Based on Dzekunov, the Examiner alleges that it “discloses an electroporation device that comprises a fluid flow chamber through which cell samples are allowed to move.” (See Office Action, at pages 6-7).

As Applicant understands, Dzekunov is directed to a device that includes walls defining a flow channel having an electroporation zone configured to receive and to transiently contain a continuous flow of a suspension of cells to be electroporated. Applicants respectfully point out that this device is different from the Applicant's claimed invention as the device in Dzekunov is configured to receive and to transiently contain a continuous flow of a suspension of cells to be electroporated. In this process, cells and other solutions are continuously processed through and do not allow the cells to be perfused with a plurality of solutions. In the Applicant's claimed invention, the cells are held by the conducting electrode material while fluid flow chamber perfuses the cells with a plurality of solutions.

Therefore, as noted, Dzekunov does not disclose, teach, or suggest at least the two features discussed above. Therefore, Dzekunov alone cannot render obvious Applicant's claimed invention. In addition, Applicant submits that, as discussed above, Dzekunov fails to cure the deficiencies of Xu and Hoff. Therefore, Applicant submits that Applicant's independent Claim 28 is patentable over at least Xu, Hoff, and Dzekunov.

Merritt

a. **Merritt does not disclose the features of the second side of the conducting material of Applicant's claimed invention**

The Examiner further relied on Merritt as allegedly disclosing, teaching, or suggesting the feature that the second side of the conducting electrode material comprises a microfiber glass that is suitable for plating and holding a monolayer of cells or lipid vehicles to be electroporated, as similarly recited in amended independent Claim 28. Applicant respectfully disagrees with that interpretation of Merritt.

First, the Examiner explicitly states that "Xu and Hoff...do not expressly disclose that the electrode material comprises glass hybridized to the simulator array with indium bumps." Instead, the Examiner relies on paragraph [0037] of Merritt as allegedly teaching this feature. Based on Merritt, the Examiner alleges that "paragraph [0037] indicates that it is known in the art to utilize indium bumps to make electrical connections between two arrays of electrical contacts." (See Office Action, at pages 5-6).

As Applicant respectfully notes, while Merritt indicates that indium bumps are well known in the art, Merritt is completely silent with respect to a conducting electrode material that comprises a microfiber glass that is suitable for plating and holding a monolayer of cells or lipid vehicles to be electroporated.

Therefore, as noted, Merritt does not disclose, teach, or suggest at least the two features discussed above. Therefore, Merritt alone cannot render obvious Applicant's claimed invention. In addition, Applicant submits that, as discussed above, Merritt fails to cure the deficiencies of Xu, Hoff, and Dzekunov. Therefore, Applicant submits that Applicant's independent Claim 28 is patentable over at least Xu, Hoff, Dzekunov, and Merritt.

**B. Summary of Independent Claim**

For at least the reasons stated above, Applicant submits that independent Claim 28 is patentable over at least Xu and Hoff.

### **C. Dependent Claims**

Each of Claims 29-32 and 34-44 depends directly or indirectly from the independent claim discussed above. Accordingly, for at least the reasons discussed above with respect to the independent claim, Applicant submits that the dependent claims are likewise patentable over the cited documents. The dependent claims also recite additional features that further define the claimed invention over the cited documents. Applicant submits that the cited documents do not disclose, teach, or suggest integrating any of these additional features of the dependent claims into the presently claimed invention. Accordingly, Applicant requests separate and individual consideration of each dependent claim.

### **No Waiver**

All of Applicant's amendments and remarks are made without prejudice. Applicant has not addressed each specific rejection of the independent and dependent claims because Applicant submits that the independent claims are allowable, as discussed above. Applicant has not acquiesced to any such rejections and reserves the right to address the patentability of any additional claim features in the future.

**CONCLUSION**

The Applicants submit the foregoing as a full and complete response to the Non-Final Office Action mailed on April 10, 2008. The Applicants and the undersigned thank Examiner Bowers for consideration of these remarks. The Applicants respectfully submit that the present application is in condition for allowance. Such action is hereby courteously solicited.

If the Examiner believes that there are any issues that can be resolved by a telephone conference, or that there are any formalities that can be corrected by an Examiner's amendment, please contact the Applicant's undersigned attorney at 202-404-1553.

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